Cyclones and gales.—There were at least four major progressive cyclones which occurred in November on the North Pacific. The earliest was that which originated on October 29 over eastern China, and caused severe gales on the 31st, east of Japan. On November 1 this storm was apparently of lessened intensity, with reported winds not exceeding 9 in force, near the fortieth parallel, between 145° and 155° east longitude. On the 2d and 3d, however, as it entered the Aleutian region and intensified the LOW already existent there, rougher weather resulted, with gales of force 11 reported from near latitude 50° N., between longitudes 170° E. and 180°. On the 3d and 4th it moved rapidly into the Gulf of Alaska, where it remained as an oscillating disturbance until about the 10th.

The second cyclone was that of the 9th to 12th which came out of Asia below Vladivostock and died out in the eastern part of the Bering Sea. This storm, however, inasmuch as it traversed a northerly region across the Sea of Okhotsk and Kamchatka, did not seriously affect any shipping along the trans-Pacific routes.

The third cyclone crossed the Yellow Sea from China on the 15th, and the Japan Sea and northern Japan on the 16th. On the 17th, when central south of the Kuril Islands, although then apparently of no great barometric depth, it was productive of hurricane velocities, as indicated by the report of the steamship *Ayaha Maru*, and on the 18th, farther eastward, by gales of full storm force. On the 19th and 20th the cyclone greatly intensified the Aleutian LOW over the eastern part of the Bering Sea and the upper waters of the Gulf of Alaska, and on the following day was central, diminishing, in the Canadian Northwest.

The fourth major traveling cyclone, although shorter in extent of water area traversed, was by no means unimportant. It probably originated on the 16th or 17th as a minor Aleutian disturbance west of the Peninsula of Alaska. On the 18th it had become a powerful cyclone in the Gulf of Alaska, with the barometer at Kodiak falling to its minimum of the month, 28.30 inches. This cyclone moved northward during the 19th and 20th, after which it no longer affected the sea. During its passage of the western part of the gulf it caused high winds, with a maximum recorded force of 11 on the 18th, over a considerable region. The period of great storm intensity, 17th to 19th, south of Alaska, was the heaviest of the month, and during its continuance two distinct and progressive cyclone centers passed over the island of Kodiak.

A traveling cyclone of much less intensity than the foregoing originated near the Hawaiian Islands about the 22d and was central over the northern extremity of the Gulf of Alaska on the 27th, after a passage between two extensive Pacific anticyclones. A few gales, with maximum reported force of 9, attended its northward course.

The month as a whole was little if any stormier than October, the varying degrees of storminess between the months being mostly local. There were fewer days with severe weather in the waters east of Japan, maximum velocities of force 10 east of Hondo and Yezo on the 12th, 21st, and 22d occurring instead of the storm and hurricane velocities of October 26 to 31. In general, south of the Aleutians, although the number of days with gales was probably not greater than in October, the winds were of somewhat higher force, owing to the greater intensity of the LOWS, forces 9 and 10 being about as frequent this month as were the forces of 8 in the previous month. Their numbers may be determined by reference to Table 1. Between Kodiak and the mainland to the northward hurricane winds from the northeast occurred on the 5th. Scattered strong to whole gales were experienced east of Midway Island on the 10th, and at some distance off the California coast on the 15th and 16th, the latter resulting from cyclonic activity extending far southward from Alaskan waters.

Few high wind velocities occurred except locally within the tropics. A fresh northeast gale was experienced east of the Mariannas on the 8th, in connection with a disturbance of low latitudes that also caused fresh gales ten degrees to the northward on the 11th. To the southeastward of the Hawaiian Islands fresh east and northeast gales on the 13th and 14th indicated merely a strengthening of the trades due to intensified high pressure gradients.

Over and south of the Gulf of Tehuantepec fresh to strong or whole gales blowing as northers, due to strong anticyclones extending southward from the United States, occurred from the 1st to 6th, and on the 23d, 24th, and 27th.

At Honolulu the prevailing direction of the wind continued from the east, with a maximum velocity of 28 miles an hour from the same direction on the 16th.

Fog.—The number of days with fog in November lessened appreciably in most localities over the number in October. There were widely separated occurrences of fog on six days, as reported from upper east longitudes, and approximately the same number in upper and central waters of west longitudes. In no part of the ocean away from the coasts was fog reported on more than three days for a given locality. The frequency was somewhat greater along the American coast, and between Eureka and central Lower California fog was encountered on from six to eight days.

TYPHOONS AND DEPRESSIONS

A VERY SMALL TYPHOON OVER THE VISAYAN ISLANDS, NOVEMBER 2 TO 3, 1930

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After two months of an extraordinary absence of typhoons, the Philippines were suddenly visited by a very small typhoon during the night of November 2 to 3. Because of its small diameter and of its great rate of progress, the typhoon entered the Archipelago without giving sufficient time for any warning. The center entered the eastern coast of southern Samar at about 9 p. m. of the 2d; it passed close to Tacloban at about 11 p. m.; and, after traversing the northern part of Leyte, Cebu, and Negros Islands, it passed very near to Iloilo at about 5.30 a. m. of November 3. The typhoon moved from Leyte to Iloilo at the extraordinary rate of over 22 miles per hour. With the exception of the portion of the track between Tacloban and Ormoc, the direction of the typhoon was West by South.

Although the depth of the typhoon was not very great, yet much damage was done to several towns, specially to those on the north side of the track owing to the considerable force obtained by the northerly winds prevailing during this part of the year. Thousands of people were homeless after the storm, particularly in the Province of Iloilo.

Press dispatches reported heavy loss of life and severe damage caused by a typhoon at the beginning of November (probably on the 5th or during the night of the 4th to 5th) at Pulo Condore, an island off the Cochin-China coast. There is no doubt that it was the same typhoon that had struck the Philippines on November 2 to 3 and continued following a West by South direction across the China Sea.

The approximate positions of the typhoon on November 1 to 5 were:

November 2, 9 p. m., 125° 40′ longitude E., 11° 20′ latitude N.
November 2, 11 p. m., 125° 05′ longitude E., 11° 15′ latitude N.
November 3, 0.30 a. m., 124° 30′ longitude E., 10° 55′ latitude N.
November 3, 6 a. m., 121° 55′ longitude E., 10° 30′ latitude N.
November 3, 2 p. m., 120° 00′ longitude E., 10° 15′ latitude N.
November 4, 6 a. m., 115° 15′ longitude E., 9° 45′ latitude N.
November 5, 6 a. m., 108° 45′ longitude E., 9° 05′ latitude N.

CLIMATOLOGICAL TABLES

[For description of tables and charts, see REVIEW, January, 1930, p. 37]

CONDENSED CLIMATOLOGICAL SUMMARY

In the following table are given for the various sections of the climatological service of the Weather Bureau the monthly average temperature and total rainfall; the stations reporting the highest and lowest temperatures, with dates of occurrence; the stations reporting the greatest and least total precipitation; and other data as indicated by the several headings.

The mean temperature for each section, the highest and lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperatures and precipitation are based only on records from stations that have 10 or more years of observations. Of course, the number of such records is smaller than the total number of stations.

Condensed climatological summary of temperature and precipitation by sections, November, 1930

Section	Temperature								Precipitation					
	Section average	Departure from the normal	Monthly extremes						Section average	Departure from the normal	Greatest monthly		Least monthly	
			Station	Highest	Date	Station	Lowest	Date			Station	Amount	Station	Amount
	°F.	°F.		°F.			°F.		In.	In.		In.		In.
Alabama	53.9	−0.2	2 stations	85	[1] 17	Valley Head	16	20	7.18	+4.10	Troy No. 1	16.39	Demopolis	3.68
Arizona	51.0	−1.5	do	95	[1] 1	Ganado	−6	20	1.80	+1.07	Pinal Ranch	6.53	2 stations	0.00
Arkansas	50.5	−1.1	Pine Bluff	87	18	2 stations	16	[1] 6	4.15	+0.50	Norman	9.35	Wilson	1.95
California	51.9	+0.4	3 stations	98	[1] 1	do	−6	[1] 14	2.39	−0.08	Lake Spaulding	9.50	Greenland Ranch	0.00
Colorado	33.0	−2.0	Eads	82	[1] 5	Dillon	−24	22	1.40	+0.51	La Veta Pass	8.25	Garnett	0.12
Florida	64.1	−1.0	Brooksville	91	18	Garniers (near)	21	27	3.47	+1.24	De Funiak Springs	16.28	Bradenton	0.09
Georgia	53.3	−1.2	Millen	86	18	Clayton	10	27	5.74	+3.09	Americus	10.63	Glennville	2.79
Idaho	31.0	−4.6	Glenns Ferry	76	7	Deadwood	−20	19	1.53	−0.63	Roland	4.52	Salmon	0.14
Illinois	43.5	+1.4	Harrisburg	83	19	2 stations	−11	28	2.16	−0.24	Quincy	4.43	Danville	0.79
Indiana	43.2	+1.0	Washington	82	19	Wheatfield	−9	28	1.98	−1.11	South Bend	3.50	Princeton	0.71
Iowa	41.3	+4.7	Clinton	79	19	Decorah	−16	28	2.12	+0.57	Centerville	4.57	Dubuque	0.79
Kansas	45.0	+1.1	Richfield	85	14	Colby	8	22	2.43	+1.21	Leavenworth	4.69	Hugoton	0.35
Kentucky	47.1	+0.7	Murray	86	19	Mount Sterling	−4	27	1.82	−1.75	2 stations	3.69	Maysville	0.81
Louisiana	58.5	−0.4	Dalcour	90	17	3 stations	22	27	6.11	+2.53	Port Eads	9.57	Covington	3.03
Maryland-Delaware	44.9	+0.3	Western Port, Md	75	18	Oakland, Md	−16	29	1.28	−1.26	Millsboro, Del	2.72	Chewsville, Md	0.48
Michigan	39.3	+2.9	Eau Claire	79	20	Wolverine	−17	28	1.55	−0.82	Eau Claire	4.46	Owosso	0.24
Minnesota	32.4	+2.8	Beardsley	74	10	Itasca State Park	−28	28	2.46	+1.38	Pigeon River Bridge	7.10	Faribault	0.52
Mississippi	55.2	+0.1	Leakesville	89	17	2 stations	20	[1] 27	6.35	+2.79	Columbia	10.72	Austin	2.82
Missouri	45.8	+1.4	Doniphan	83	18	4 stations	8	28	2.93	+0.53	Lamonte	6.10	Doniphan	1.27
Montana	31.6	−0.3	3 stations	75	[1] 1	2 stations	−20	[1] 15	0.86	−0.03	Heron	5.00	2 stations	0.09
Nebraska	39.1	+2.4	Wakefield	79	14	Gordon	5	24	1.91	+1.12	Seward	3.47	Sheep Creek Camp	0.15
Nevada	38.7	−2.6	2 stations	89	3	San Jacinto	−16	15	1.21	+0.53	Lewers Ranch	5.13	3 stations	0.00
New England	39.4	+1.5	Weston, Mass	72	22	Keene "E", N. H.	−10	29	3.54	+0.06	Milford, Conn	7.31	Danforth, Me	1.28
New Jersey	44.1	+1.3	Belleplain	73	15	Charlotteburg	2	29	3.70	+0.52	Bayonne	6.54	Northfield	1.41
New Mexico	40.0	−2.1	Clovis	78	3	2 stations	14	[1] 22	0.93	+0.28	Cloudcroft	2.86	Vance (near)	0.05
New York	41.0	+3.2	Cairo	77	22	do	−13	29	2.34	−0.68	Setauket	7.13	Dansville	0.39
North Carolina	47.9	−1.6	2 stations	82	18	Mount Mitchell	−13	27	3.28	+0.72	Highlands	8.11	Rocky Mount	1.14
North Dakota	29.4	+2.8	do	72	[1] 3	Drake	−21	30	0.87	+0.29	Grand Forks	3.09	3 stations	T.
Ohio	42.6	+1.0	Circleville	80	19	5 stations	−4	[1] 27	1.55	−1.22	Phalanx	3.51	Athens	0.49
Oklahoma	50.8	+0.6	Poteau	88	18	2 stations	16	[1] 23	2.24	+0.21	Eufaula	5.14	Hooker	0.20
Oregon	40.0	−1.1	Government Camp	87	21	do	−8	19	2.91	−1.94	Government Camp	9.31	Blitzen	0.10
Pennsylvania	42.0	+1.0	Newell	75	21	Somerset	−15	29	1.48	−1.33	Mount Pocono	4.29	Ansonia	0.22
South Carolina	50.8	−2.9	Trenton	85	18	Caesar's Head	6	27	4.35	+2.02	Caesar's Head	8.67	Charleston	1.23
South Dakota	35.4	+1.9	Flandreau	78	10	Webster	−7	[1] 26	1.27	+0.55	Sioux Falls	2.80	Dowling	0.12
Tennessee	48.5	+0.1	McKenzie	86	19	2 stations	3	[1] 27	3.29	−0.33	Rockwood	6.44	Newbern	1.55
Texas	55.7	−1.4	Falfurrias	94	16	Spearman	17	26	2.72	+0.38	Columbus	8.00	Buena Vista	T.
Utah	31.9	−5.5	Springdale	80	4	Woodruff	−21	20	1.11	+0.13	Silver Lake	3.47	Green River	0.03
Virginia	45.5	−1.0	Pedlar Dam	80	[1] 20	Burkes Garden	−1	27	1.80	−0.53	Rocky Mount	3.62	Fredericksburg	0.66
Washington	37.9	−1.6	Lake Cleallum	75	10	Davenport	−2	18	2.91	−2.62	Wynoochee Oxbow	10.97	Sunnyside	0.07
West Virginia	42.3	−0.2	2 stations	80	[1] 18	Bayard	−14	29	1.42	−1.38	Pickens	4.45	Dam 13, Ohio River	0.46
Wisconsin	36.9	+3.3	Marshfield	80	10	Solon Springs	−19	28	1.19	−0.63	Superior	2.77	Sturgeon Bay	0.23
Wyoming	30.5	−0.9	3 stations	72	[1] 3	Riverside	−32	19	0.54	−0.20	Bechler River	3.13	4 stations	0.00
Alaska (October)	29.7	−1.3	Sitka	61	23	White Mountain	−13	29	3.50	−0.38	Port Alexander	31.70	Barrow	0.02
Hawaii	72.9	+1.1	Kaanapali	93	16	Puu Kapele	50	28	13.32	+5.38	Puu Kukui (upper)	45.00	Pahoehoe	0.86
Porto Rico	77.2	+0.4	Fajardo	98	18	Guineo Reservoir	50	19	7.17	−0.25	Rio Blanco	18.67	Coamo	1.03

[1] Other dates also.